AMENDMENTS TO THE CLAIMS

1-46 (cancelled).

47. (new): A method of normalizing output values of a laser diode, the method comprising:

a) varying control currents for a specific section of a laser diode device over a range of values in a first sample index so as to obtain a set of output values for that section of the laser diode; and

b) normalizing the set of output values, wherein the normalization of the output values compensates for non-linearities in the output values by effecting a change in relationship between the control currents and the sample index.

48. (new): A computer readable medium having stored therein instructions for causing a processor to execute the method of claim 47.

49. (new): The method of claim 47 wherein the output values are representative of power or frequency.

50. (new): The method of claim 47 further comprising obtaining a set of normalized values for one or more other sections of the laser.

51. (new): The method of claim 47 wherein the normalization is effected by a transform applied to sample index, thereby changing the control currents and the output values.

52. (new): The method of claim 51 wherein the transform is a non-linear transform.

53. (new): The method of claim 51 wherein the generated transform is subsequently used to effect a further generation of a set of output values for multiple combinations of control

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currents or sections for the laser device, the generated set having being normalized due to the utilization of the transform.

54. (new): The method of claim 47 wherein the normalization of the output values is effected using a current of mode jumps.

55. (new): The method of claim 47 further comprising detecting mode jumps by a power measurement.

56. (new): The method of claim 55 wherein the mode jumps are represented by discontinuities in the power measurement.

57. (new): The method of 47 further comprising detecting mode jumps by a frequency measurement.

58. (new): The method of claim 57 wherein the mode jumps are represented by a step in a frequency measurement.

59. (new): The method of claim 47 wherein the normalization is effected by a transform applied to sample index, thereby changing the control currents and the output values, and wherein the application of the transform effects an equalization of mode width.

60. (new): The method of claim 47 further comprising determining deviations in mode width, thereby providing indications of the integrity of the laser device.

61. (new): The method of claim 47 wherein the normalization is effected using a relative loss of that section as a function of control current.

62. (new): The method of claim 47 wherein a gain current of the laser device can be altered using the normalization.

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63. (new): The method of claim 47 wherein the normalization output values provide a determination of locations of modes.

64. (new): The method of claim 63 wherein the modes are locatable by effecting a differentiating of the normalized values.

65. (new): The method of claim 47 further comprising determining suitable operating points, wherein the operating points are selectable on the basis of a determination of a mid-point in frequency values for a specific mode.

66. (new): The method of claim 64 wherein one of the suitable operating points is at a mean frequency for that mode and benefits from maximum side mode suppression.

67. (new): A method of determining a mode width for a laser diode device, the method comprising:

a. determining a location of a mode;

b. extracting from the determined location of the mode, the mode width in control current as a function of a control current for all modes and all currents so as to provide for a relationship between the mode width of the laser and a control current for that laser; and

c. converting the control current to frequency for the device so as to provide a relationship between mode width and frequency.

68. (new): A computer readable medium having stored therein instructions for causing a processor to execute the method of claim 67.

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69. (new): A method of obtaining the mode modulation for a laser diode, the method comprising:

obtaining tuning characteristics of a tunable laser and measuring a set of sample data that has been normalized out;

detecting mode jumps of the tunable laser;

measuring a mode width of the laser and plotting this value against a predetermined combination of control currents for the tunable laser where this mode is present which can in turn be converted to output frequency of the tunable laser; and

converting the mode width to a percentage deviation of average mode width of the laser.

70. (new): A computer readable medium having stored therein instructions for causing a processor to execute the method of claim 69.

71. (new): A control system for normalizing the output values of a laser diode, the system comprising :

means for varying control currents for a specific section of a laser diode device over a range of values in a first sample index so as to obtain a set of output values for that section of the laser diode; and

means for normalizing the set of output values, wherein the normalization of the output values compensates for non-linearities in the output values by effecting a change in relationship between the control currents and the sample index.

72. (new): The system as claimed in claim 71 wherein the output values are representative of power or frequency.

73. (new): The system as claimed in claim 71 further comprising means for obtaining a set of normalized values for one or more further sections of the laser.

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74. (new): The system of claim 71 wherein the normalization is effected by a transform applied to the sample index, thereby changing the control currents and the output values.

75. (new): The system of claim 74 wherein the transform is a non-linear transform.

76. (new): The system of claim 74 wherein the generated transform is subsequently used to effect the further generation of a set of output values for multiple combinations of control currents or sections for the laser device, the generated set having being normalized due to the utilization of the transform.

77. (new): The system of claim 71 wherein the normalization of the output values is effected using a current of mode jumps.

78. (new): The system of claim 71 further comprising a means for detecting mode jumps by a power measurement.

79. (new): The system of claim 78 wherein the mode jumps are represented by discontinuities in a power measurement.

80. (new): The system of claim 71 further comprising means for detecting mode jumps by a frequency measurement.

81. (new): The system of claim 80 wherein mode jumps are represented by a step in a frequency measurement.

82. (new): The system of claim 71 wherein the application of the transform effects an equalization of mode width.

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83. (new): The system of claim 71 further comprising means for determining deviations in mode width, thereby providing indications of the integrity of the laser device.

84. (new): The system of claim 71 wherein the normalization is effected using a relative loss of that section as a function of control current.

85. (new): The system of claim 71 wherein a gain current of the laser device can be altered using said normalization.

86. (new): The system of claim 71 wherein the normalization output values provide for a determination of location of modes.

87. (new): The system of claim 71 further comprising means for determining suitable operating points, the operating points being selectable on the basis of a determination of a mid-point in frequency values for a specific mode.

88. (new): The system of claim 87 wherein one of the operating points is at the mean frequency for that mode and benefits from maximum side mode suppression.

89. (new): The system of claim 71 wherein the normalization output values provides for a determination of location of modes and wherein the modes are locatable by effecting a differentiating of the normalized values.

90. (new): A control system for determining a mode width for a laser diode device, the system comprising:

means for determining locations of the modes;

means for extracting from the determined mode locations the mode width in control current as a function of a control current for all modes and all currents so as to provide for a relationship between the mode width of the laser and a control current for that laser; and

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means for converting the control current to frequency for the device so as to provide a relationship between mode width and frequency.

91. (new): A control system for obtaining a mode modulation for a laser diode, the system comprising:

means for obtaining tuning characteristics of a tunable laser and for measuring a set of sample data where this data has been normalized out;

means for detecting mode jumps of the tunable laser;

means for measuring a mode width of the laser and plotting this value against a predetermined combination of control currents for the tunable laser where this mode is present which can in turn be converted to output frequency of the tunable laser; and

means for converting the mode width to a percentage deviation of average mode width of the tunable laser.

92. (new): A control system for normalizing the output values of a laser diode, the system comprising:

a current source control for varying control currents for a specific section of a laser diode device over a range of values in a first sample index so as to obtain a set of output values for that section of the laser diode; and

a control system for normalizes the set of output values, wherein the normalization of the output values compensates for non-linearities in the output values by effecting a change in relationship between the control currents and the sample index.

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